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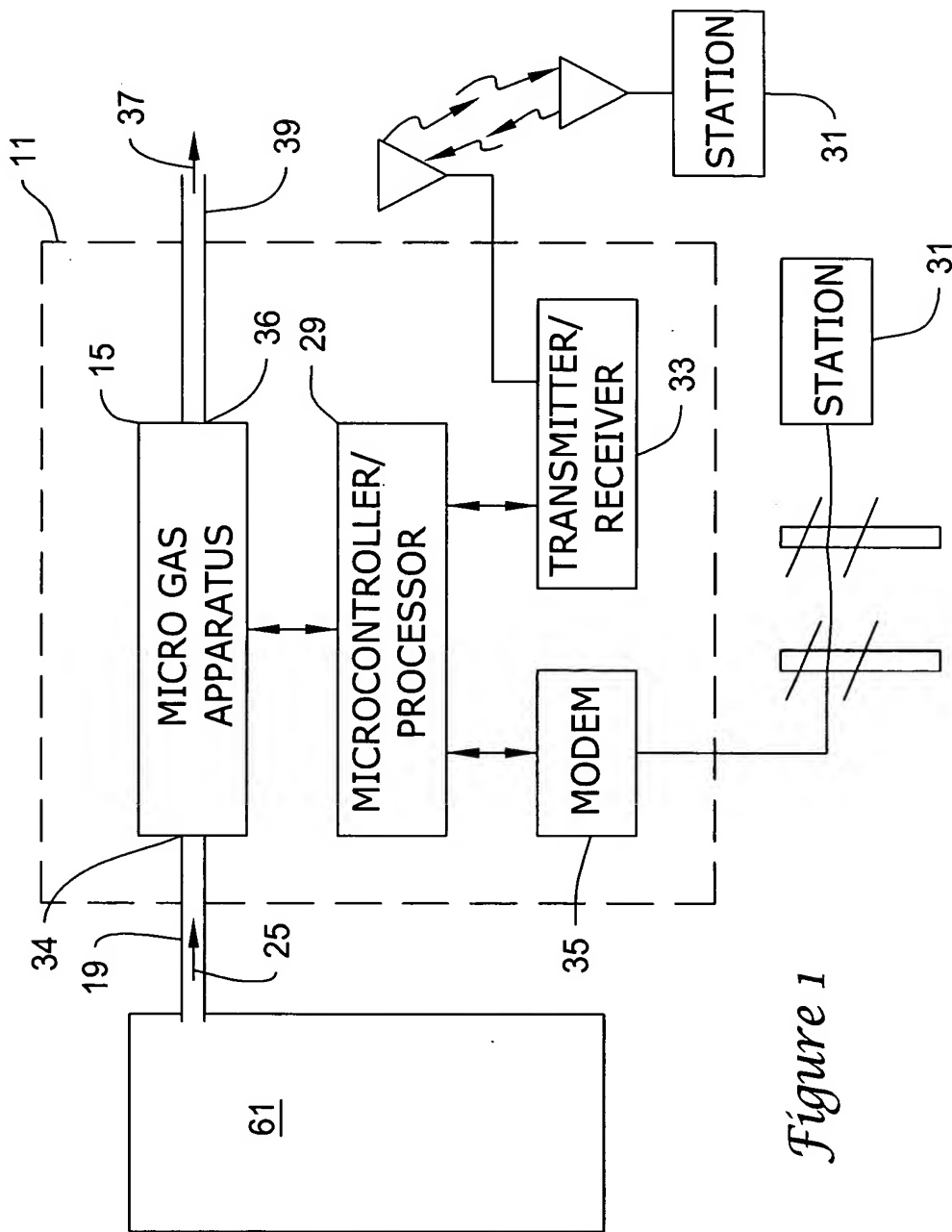


Figure 1

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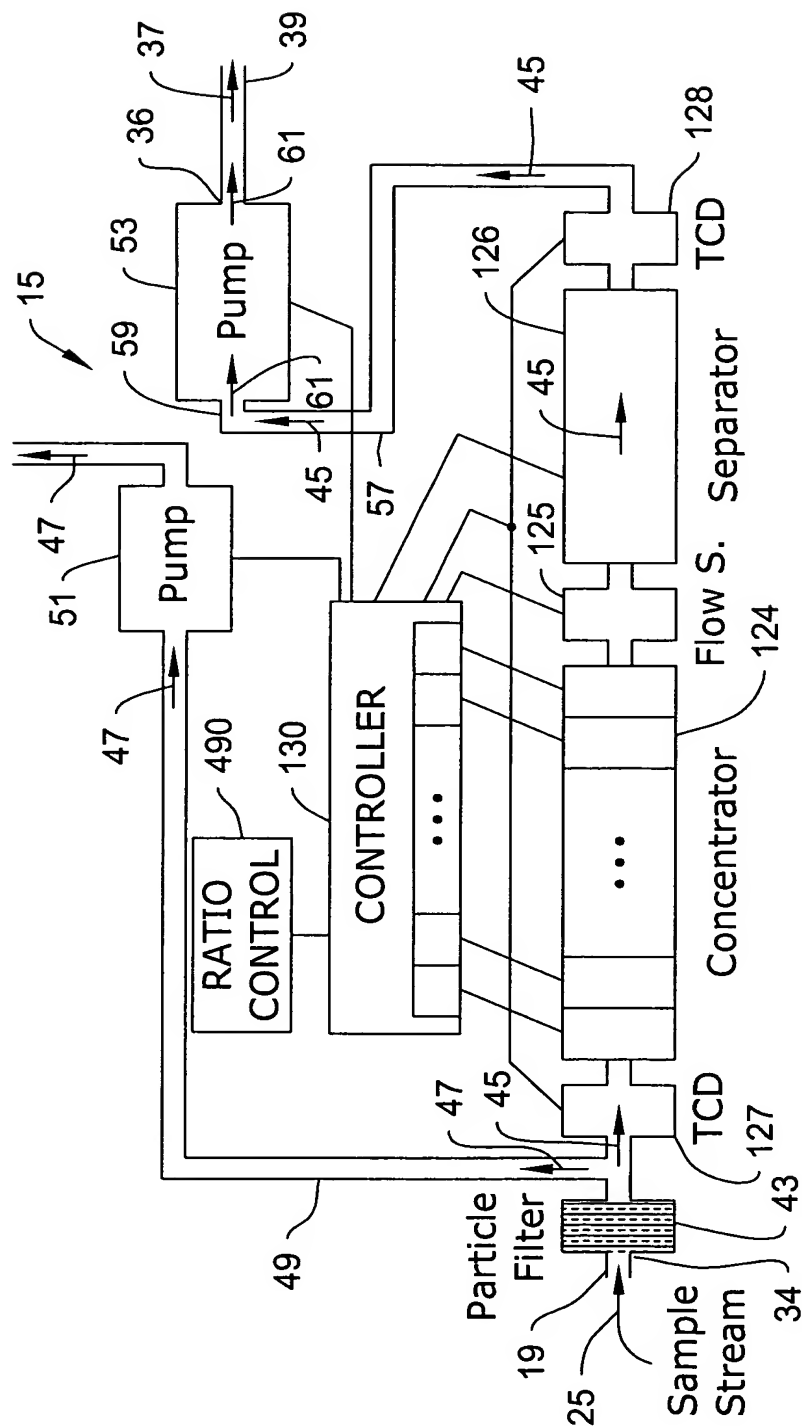


Figure 2

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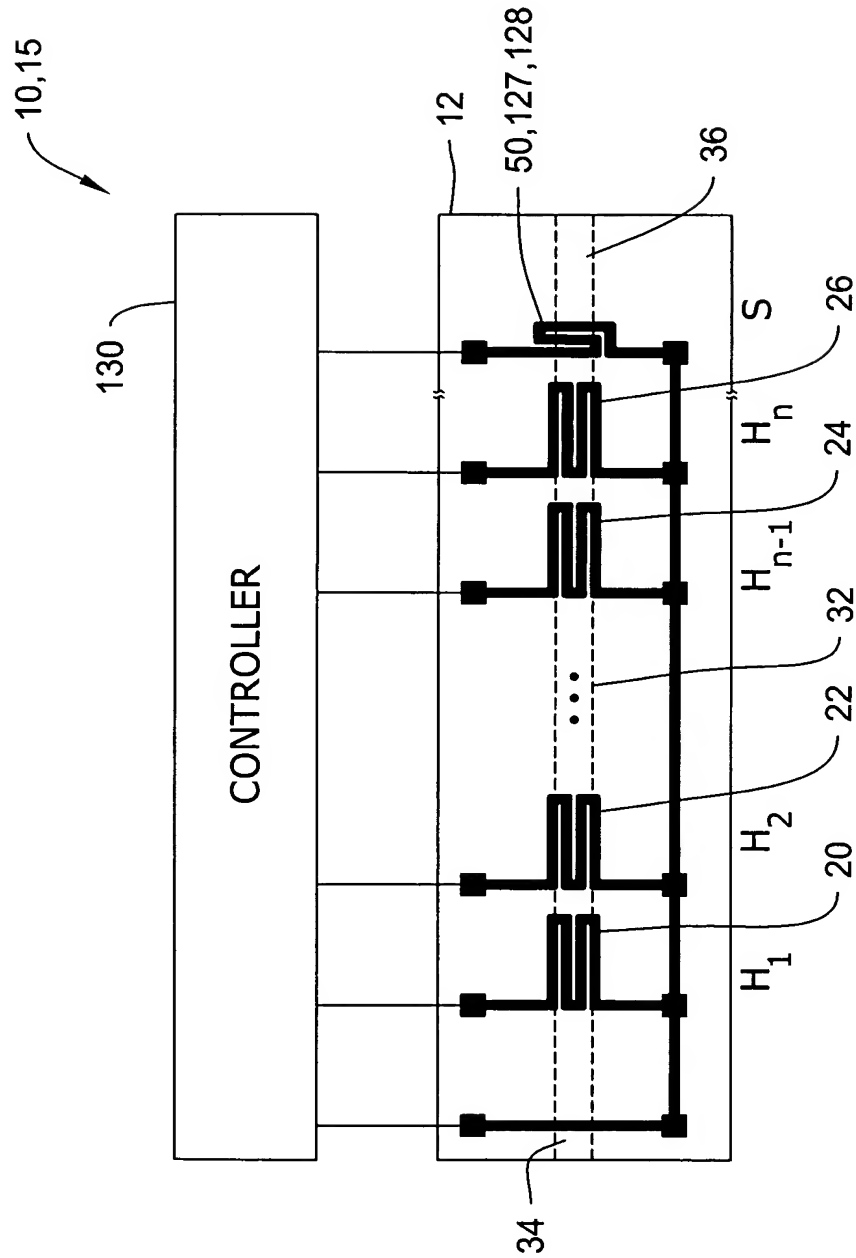


Figure 3

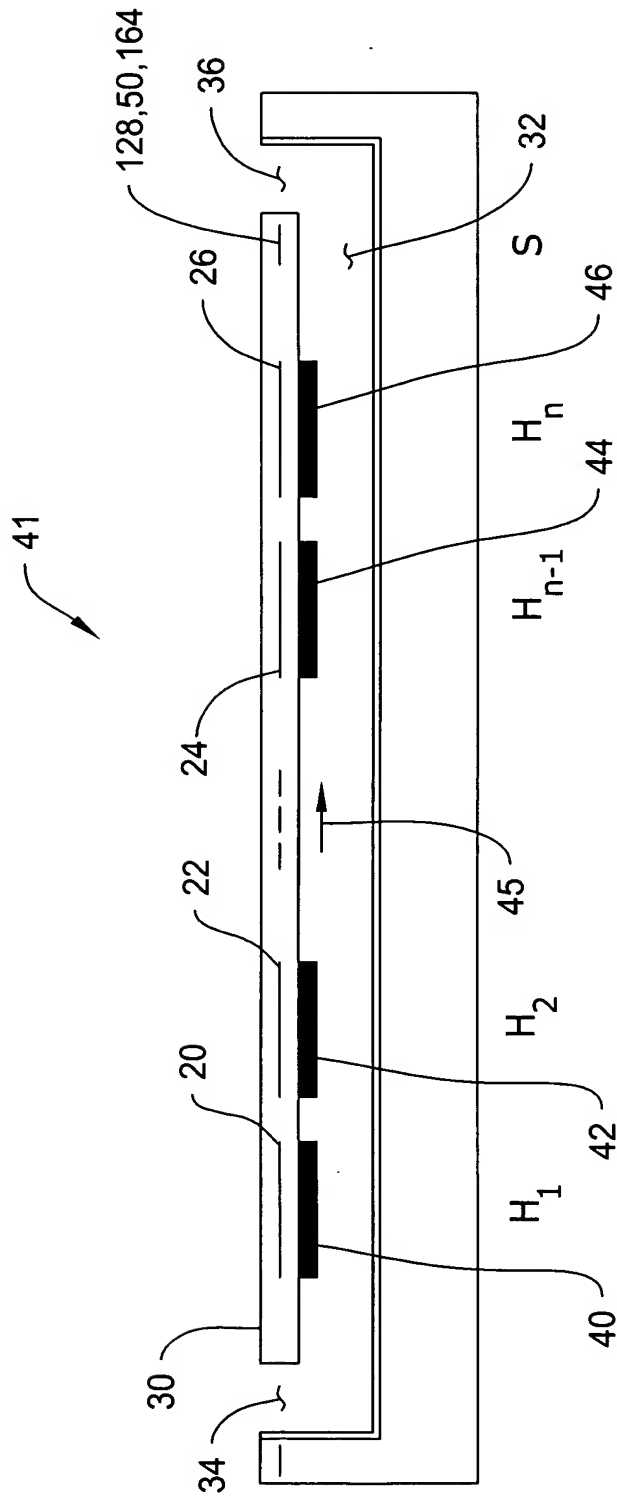


Figure 4

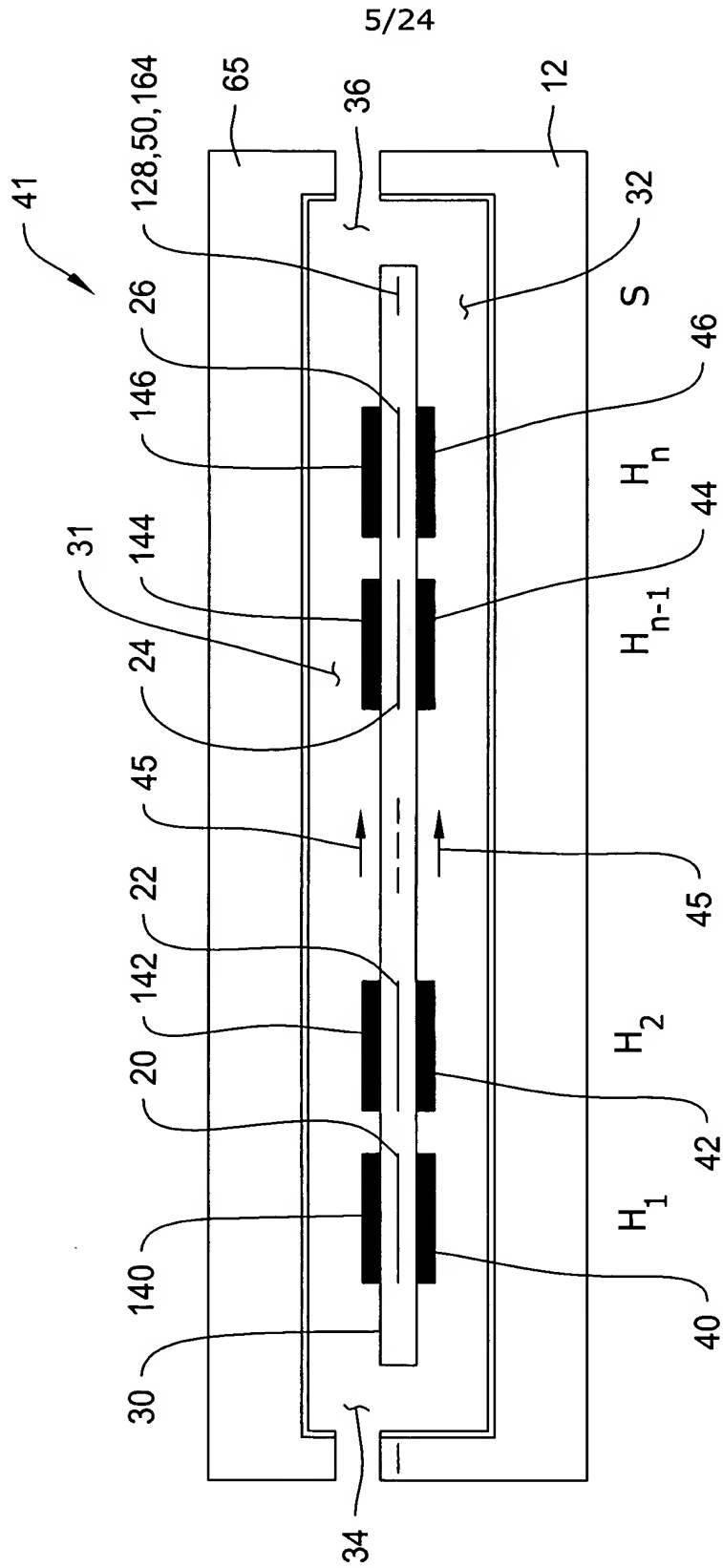


Figure 5

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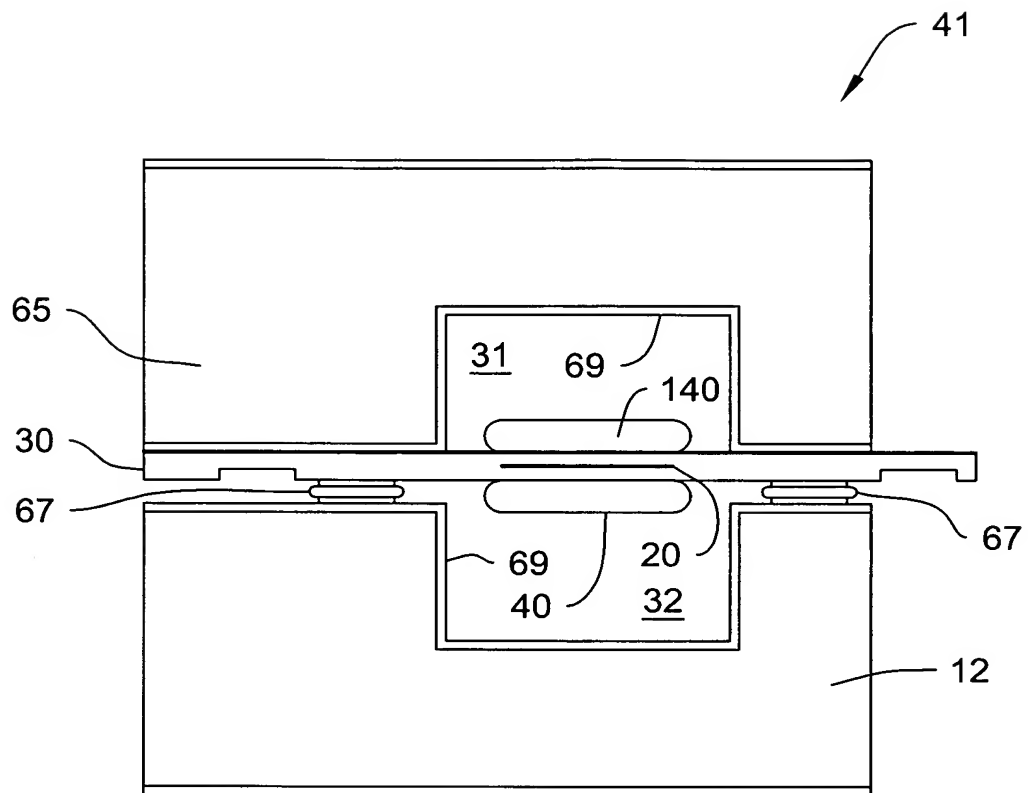


Figure 6A

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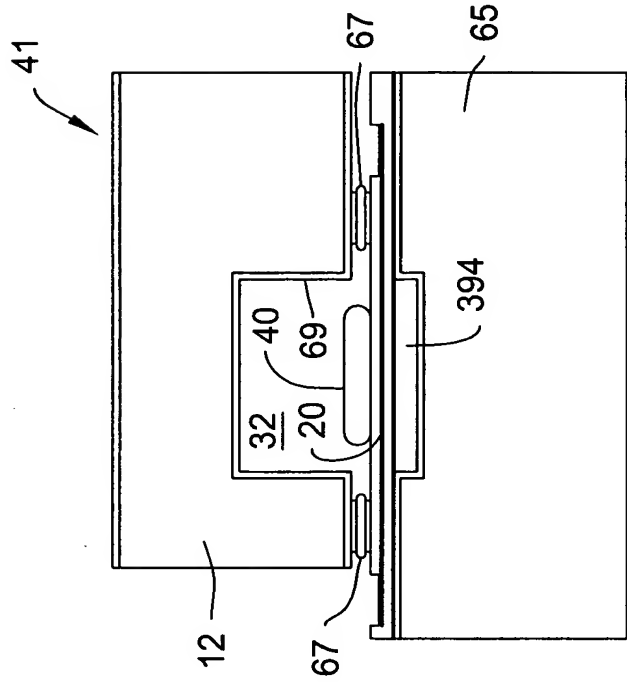


Figure 6C

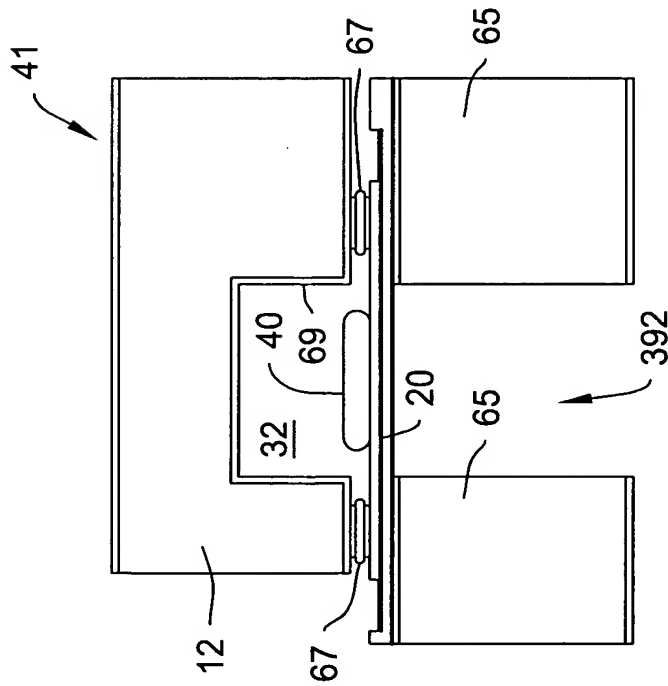


Figure 6B

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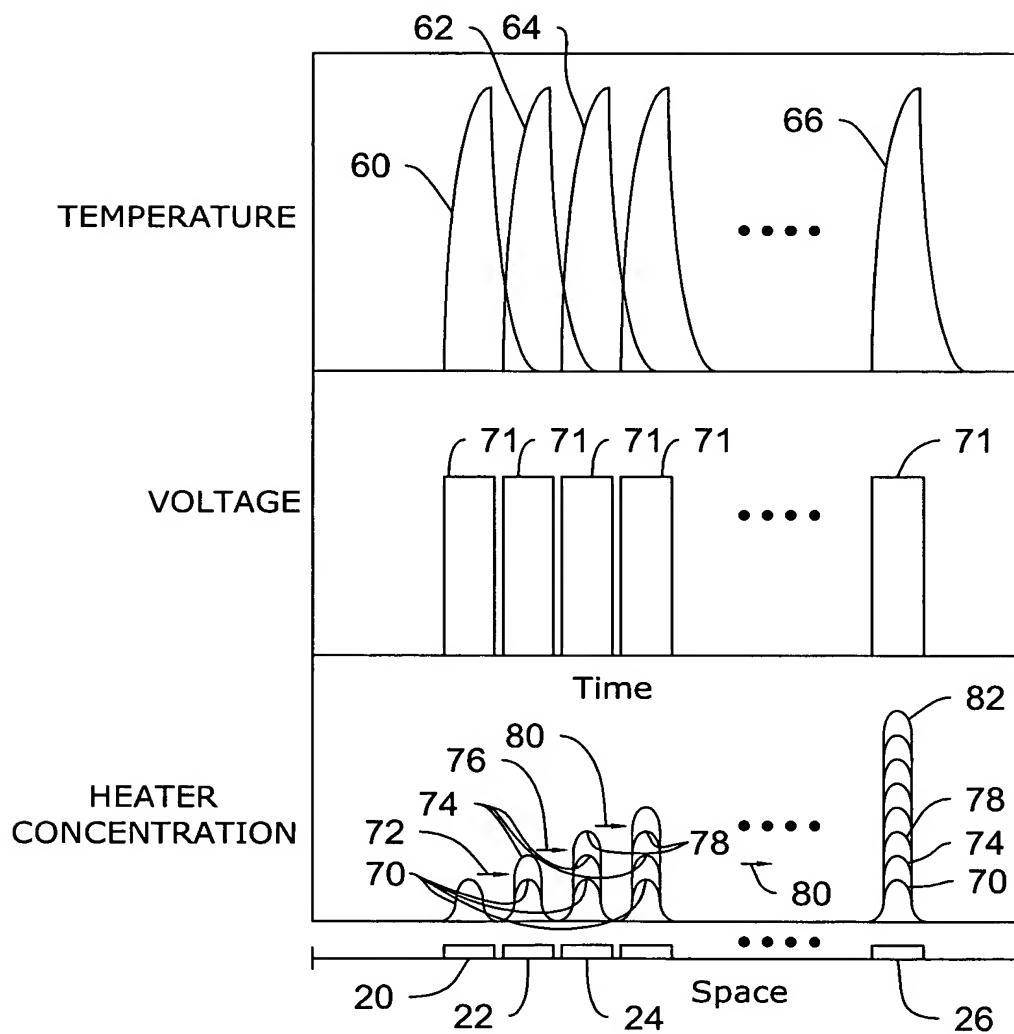


Figure 7

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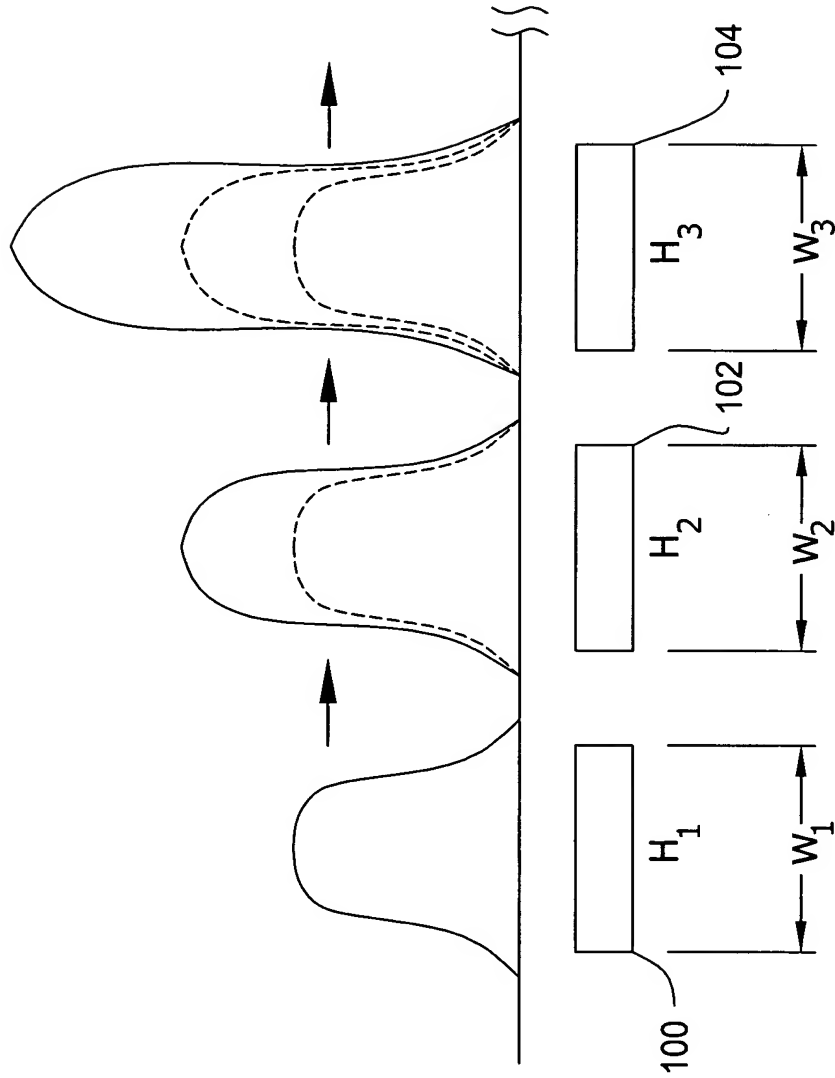


Figure 8

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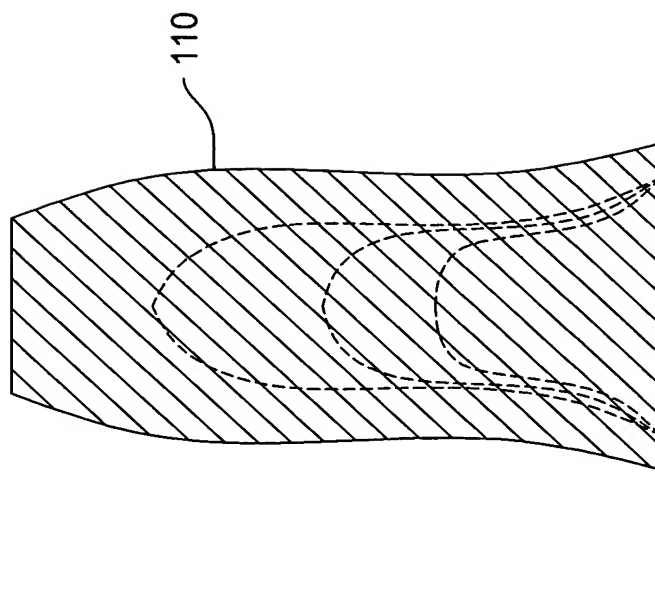


Figure 9

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Table Comparison of Detection Limits in pg/s (MDL) and Selectivities $\times 10^3$ (SEL)

element	wavelength, nm	this work		ref 9 (without background correction)		ref 9 (with background correction)		ref 7 ^a (echelle)		ref 8 ^b (with background correction)	
		MDL	SEL	MDL	SEL	MDL	SEL	MDL	SEL	MDL	SEL
N	174.2	7.0	6								
S	180.7	1.7	150								
Hg	184.9	0.1	3000								
C	193.1	0.5								53	
P	177.5	1.5	25								
C	247.9	2.6									
Si	251.6	7.0	90	2.7	1.6						
P	253.6			9.3	11			58	3.9		
Hg	253.7	0.1	5000	3.3	77			4.2	26		
Br	470.4			0.6				2.0	91		
Br	478.6	75	19	33	0.27	67	1.0	20	1.4	38	0.53
Cl	479.5	39	25	34	0.50						
Cl	481.0			43	0.61	86	1.5			32	1.0
H	486.1	2.2						32	2.4		
S	545.4	7.2	26	16							
D	656.1	2.5	0.6 ^c	33	0.08	52	4.6	126	0.25	234	0.07
H	656.3	3.0		7.4	0.19						
F	685.6	40	30	7.5						37	
O	777.2	75	25	20	0.57	180	11.4	17	3.5	11	0.82

^aReference 7 uses peak width at base instead of peak width at half height to determine MDL, and the numbers have been adjusted accordingly for comparison. ^bReference 8 uses 1σ instead of peak to peak (6σ) to measure noise for MDL, and their numbers have been adjusted accordingly for comparison. ^cVersus hydrogen.

Figure 10

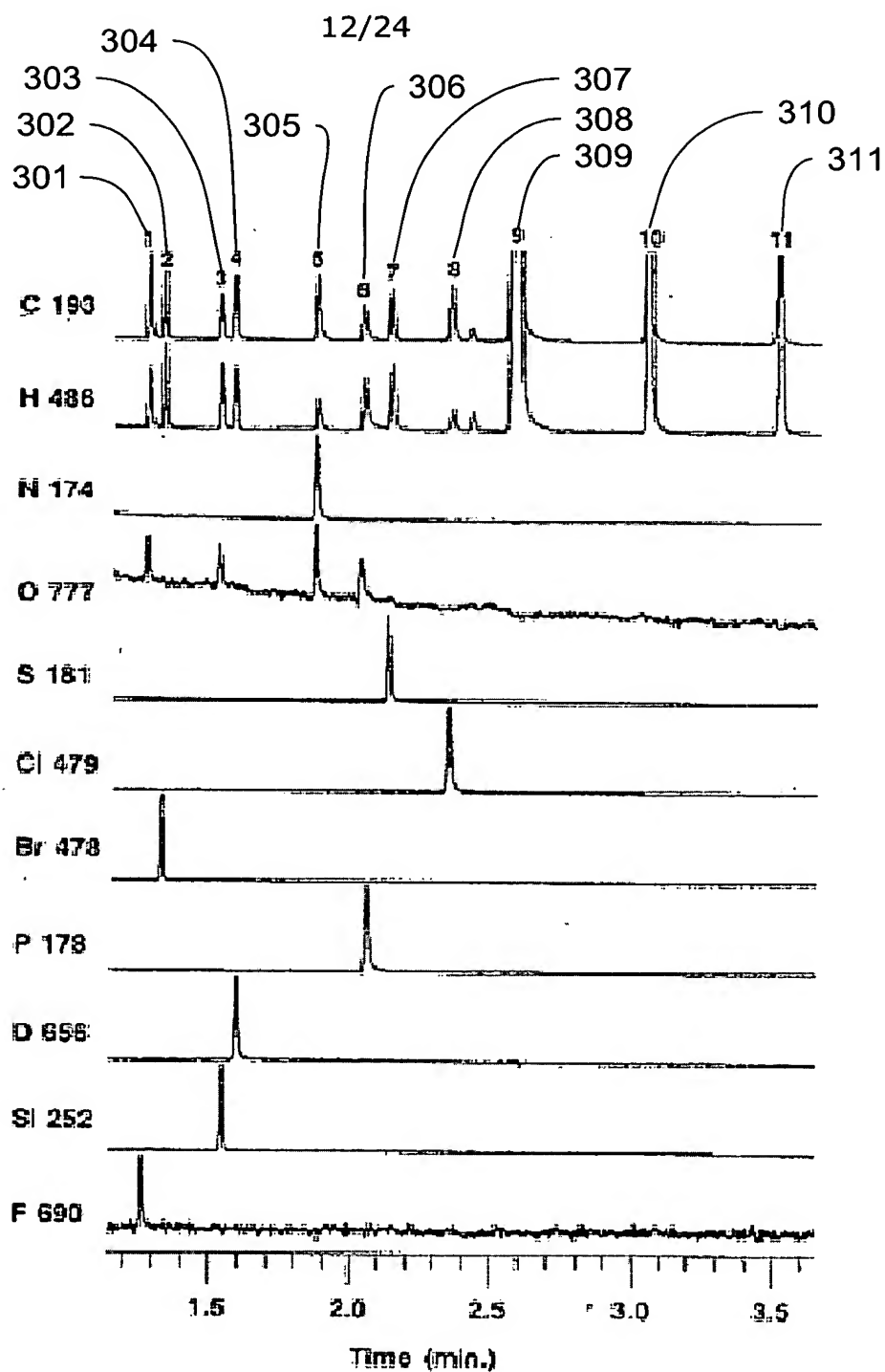


Figure 11

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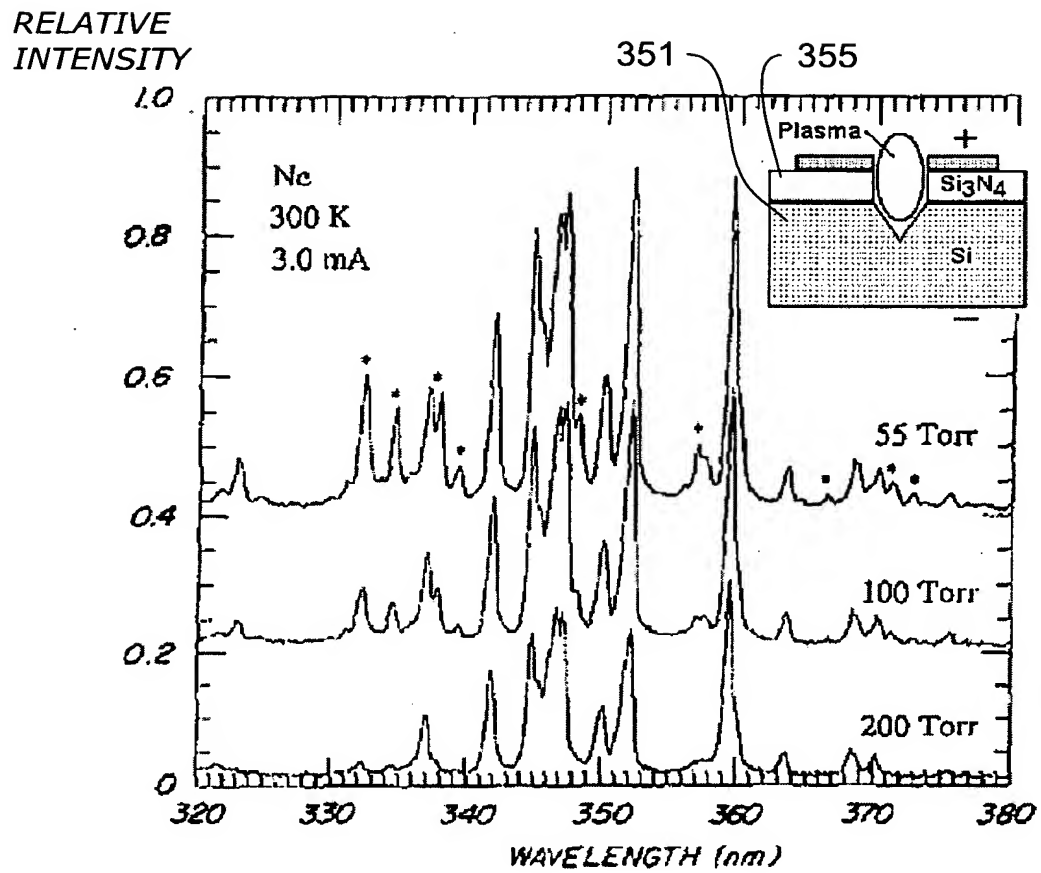
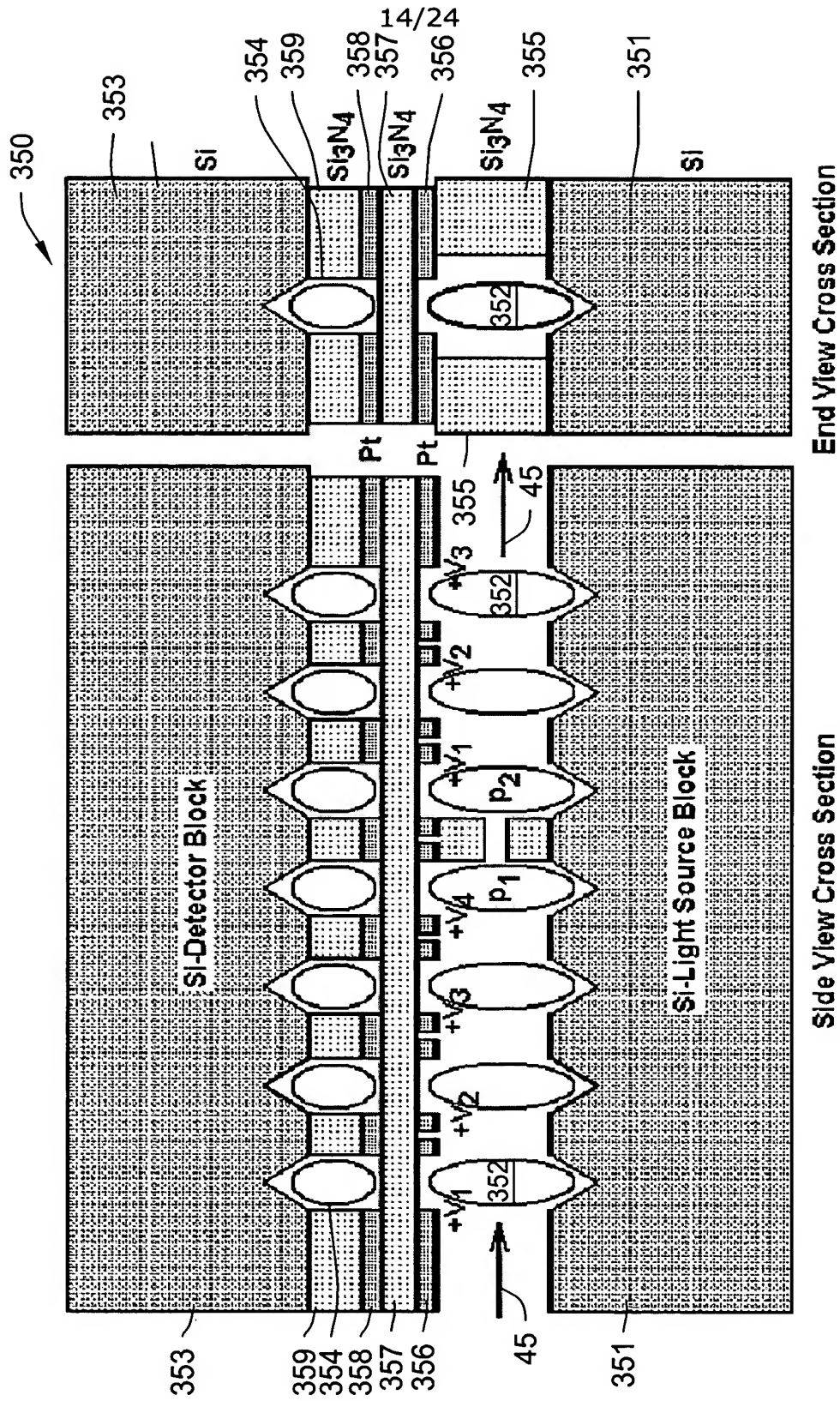


Figure 12



End View Cross Section

Side View Cross Section

Figure 13

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Photosensitivity
in A/W

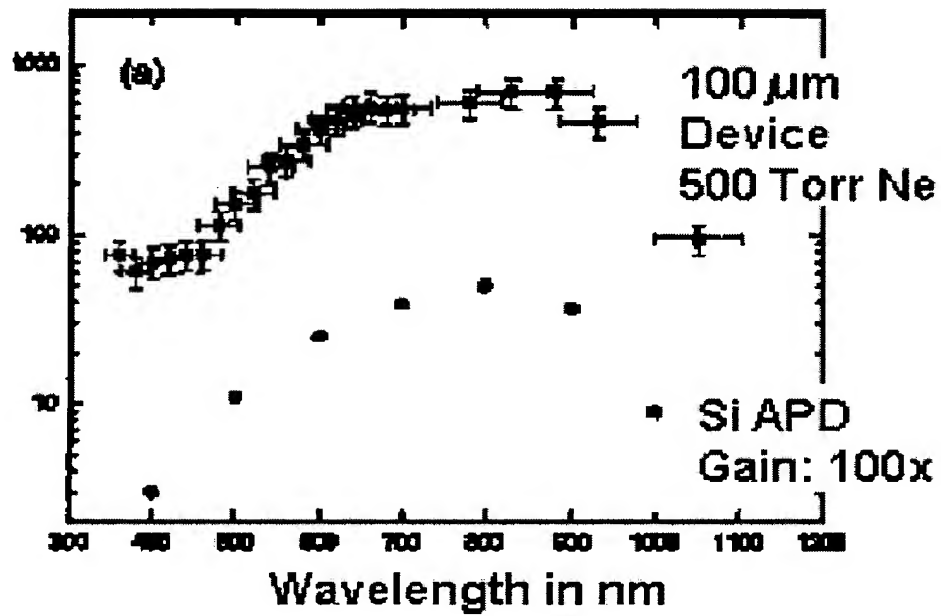
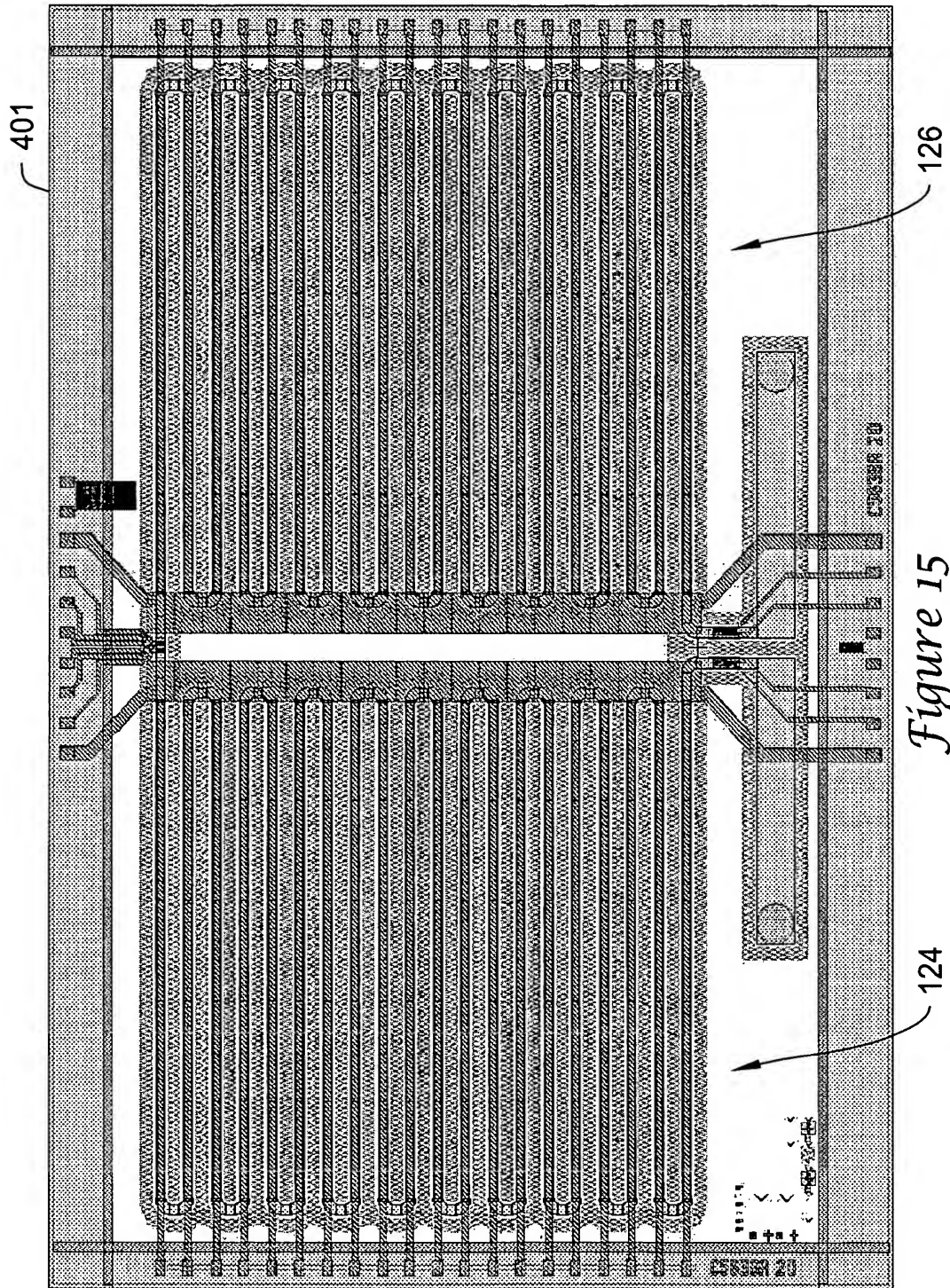


Figure 14

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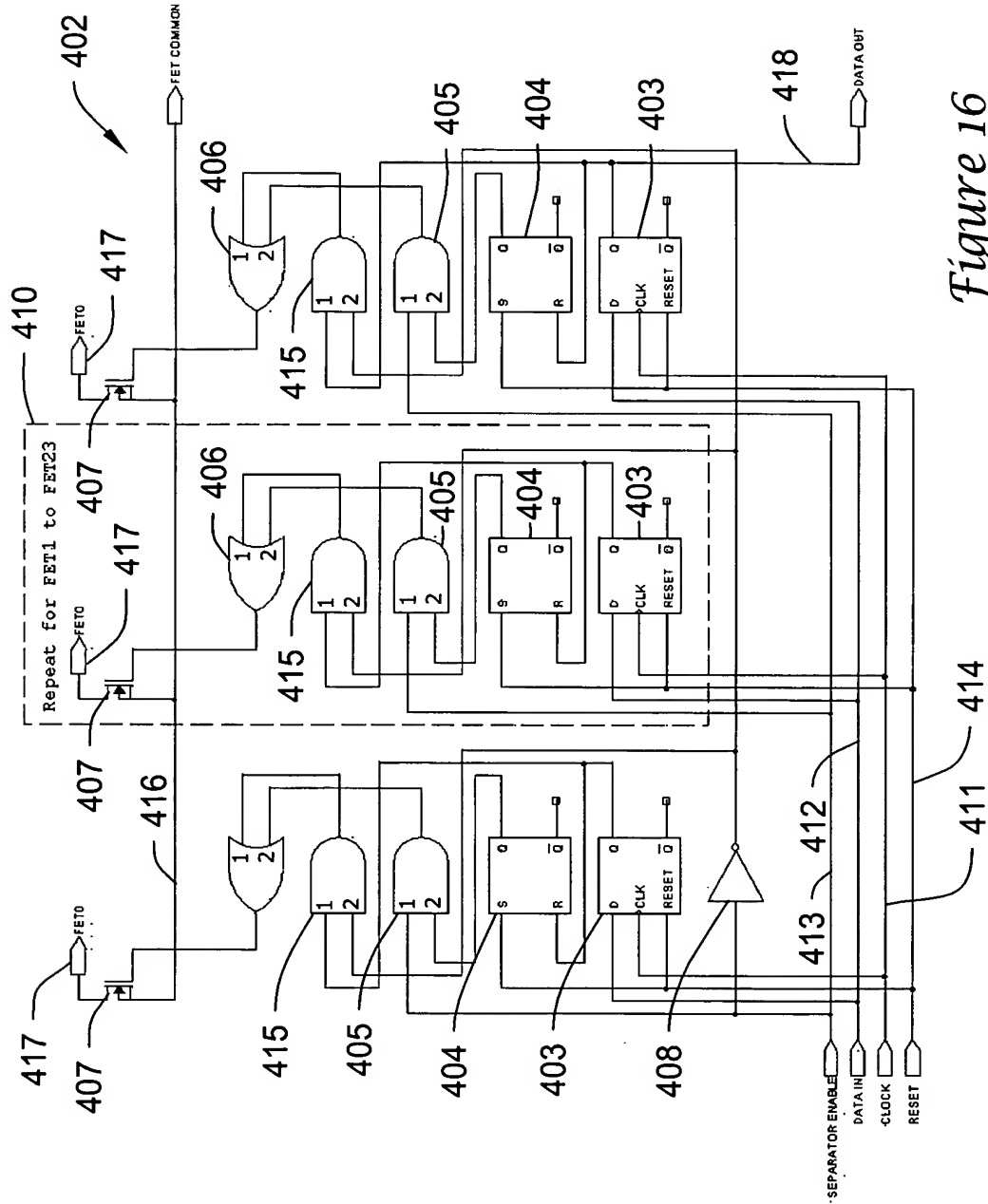


Figure 16

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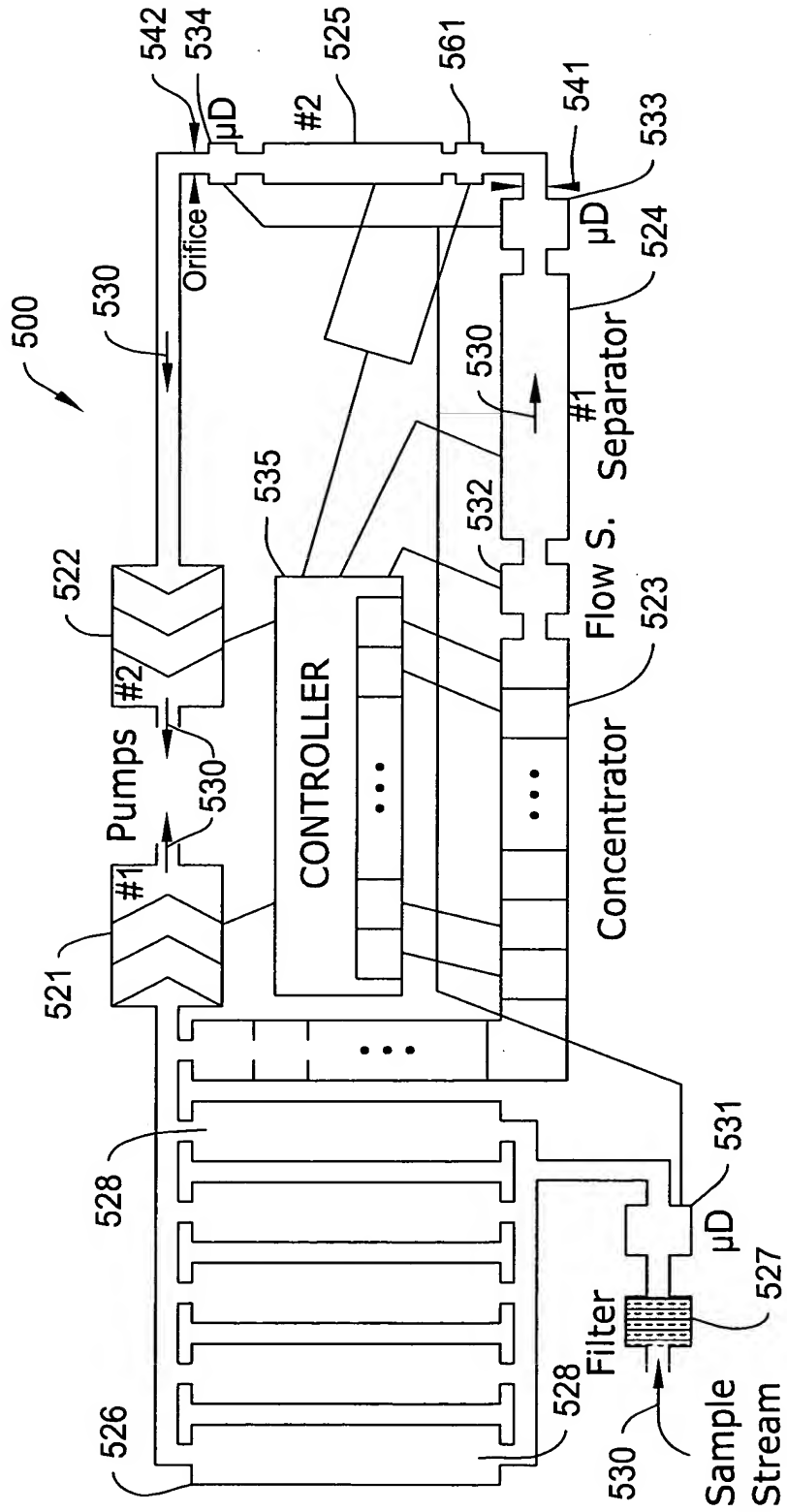


Figure 17

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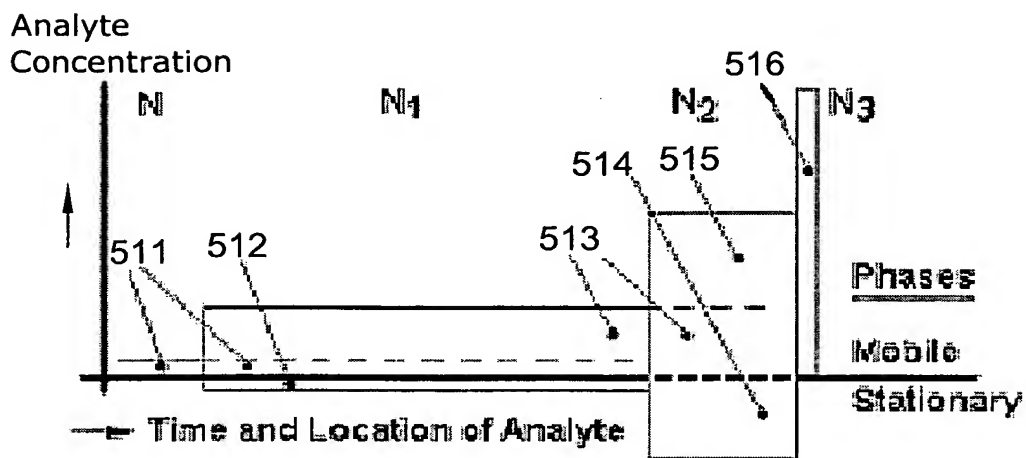


Figure 18

Analyte Masses = Film Length x Concentration				
	<u>N ppt</u>	<u>N₁ ppt</u>	<u>N₂ ppt</u>	<u>N₃ ppt</u>
A	∞x1	500x100	5x10,000	1x 50,000
B	∞x1	1000x100	10x10,000	1x100,000
C	∞x1	5,000x100	50x10,000	1x500,000
D	∞x1	10,000x100	100x10,000	1x520,000+less
E	∞x1	100,000x100	1,000x10,000	10x1,000,000 (10 ⁷)

Figure 19

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Pres.Drop at 100 cm/s, 100x100 μ m			
No. of Elem.	Length	Pres. Drop	Peak P.
N1	L	Δp	Q
-	cm	psi	watts
50	0.5	2.629	20.5
505	0.1	5.311	41.3
1010	0.1	10.621	82.6

Figure 20

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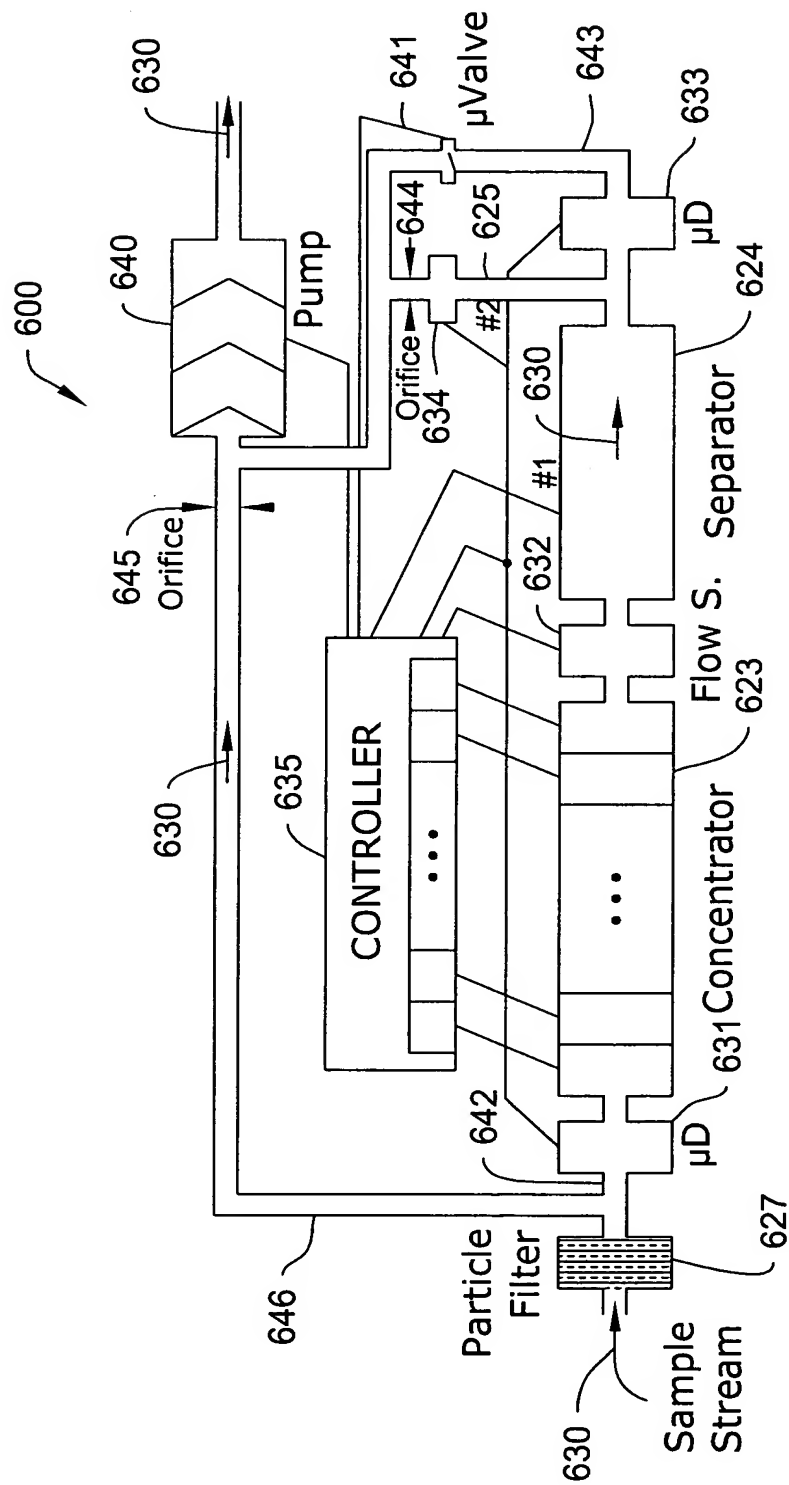


Figure 21

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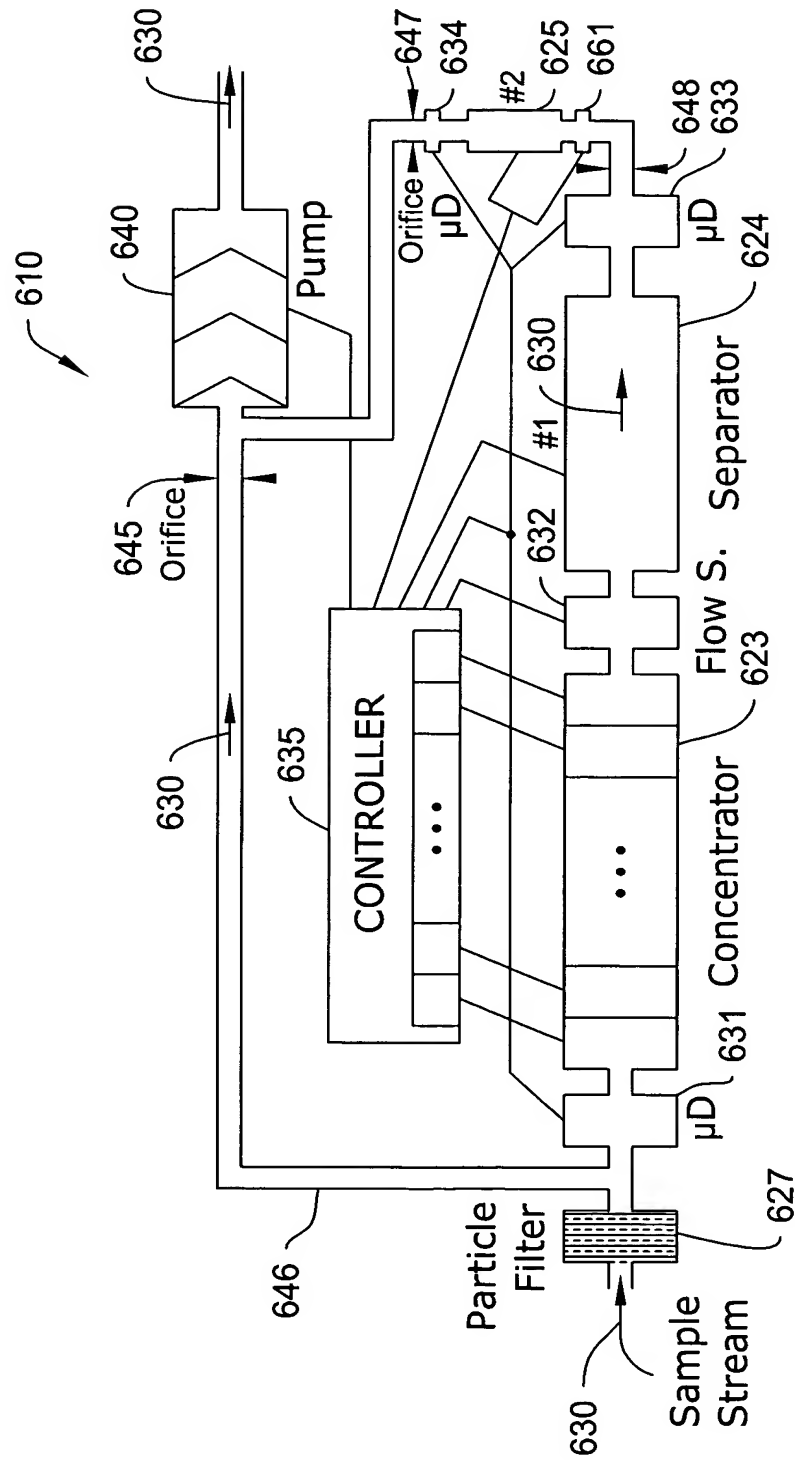


Figure 22

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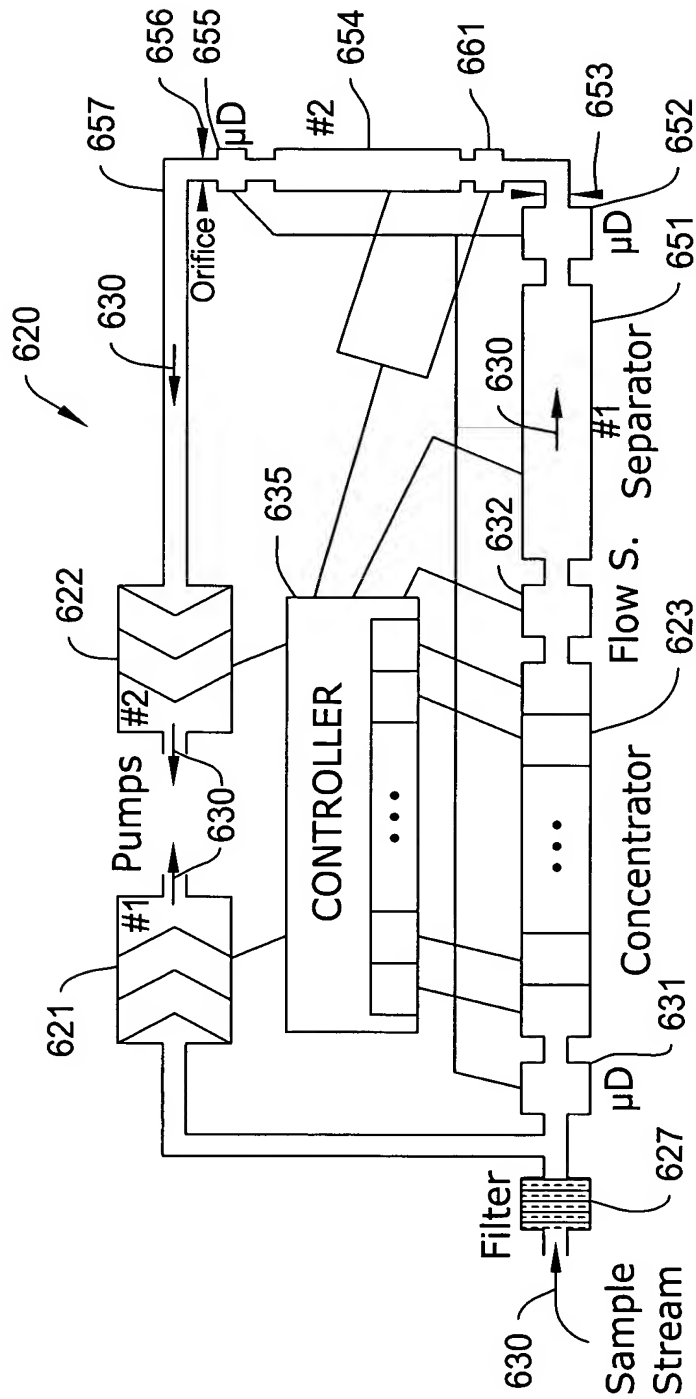


Figure 23

Table: Design of μ Gc- μ GC System on the Basis of a PHASED Structure

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	v in cm/s	ID in cm	L in cm	s in μm	ℓ in mm	V in cm3/min	Δp in psi				
μGC-1	50	0.014	25	1	5	0.588	.671				
μGC-2	250	0.007	10	0.15	2.5	0.588	5.365				

Figure 24